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EXAMINER

SANTIAGO, MARICELI

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 06/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/597,547

Applicant(s)

SULCS ET AL.

Examiner

Mariceli Santiago

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-50 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Specification

The disclosure is objected to because of the following reasons:

In Page 9, line 5, Figs. 23-26 are grouped in the brief description of the drawings, such regrouping of figures is not appropriate since each figure needs to have a separate brief description. See MPEP 608.01(f).

In Page 11, lines 13-14, the phrase "Serial No., filed " appears to be incomplete.

Appropriate correction is required.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claims 7, 9 and 38 recite the limitation "the width of the arc tube at the height of said electrodes at the free ends of said electrodes being approximately $\frac{2}{3}$ of the width of the arc tube at the height of said electrodes at the center of the arc tube", the specification fails to provide proper antecedent basis for the claimed subject matter.

Claim 39 recites the limitation "the ratio of the width to the height of the arc tube at the longitudinal enter thereof is approximately one", the specification fails to provide proper antecedent basis for the claimed subject matter. Specifically, the ratio disclosed in the specification relates to the ratio of the longitudinal length of the chamber to the nominal height of the chamber.

Claim 43 recites the limitation "wherein the ratio of the diameter of the tube to the maximum horizontal width of said chamber is between about 7/10 and about 7/30", the specification fails to provide proper antecedent basis for the claimed subject matter. Specifically, the ratio disclosed in the specification relates to the ratio of the diameter of the tube to the maximum height of the chamber.

Claim 44 recites the limitation "the ratio of the maximum vertical height of said chamber to the maximum horizontal width of said chamber is approximately one", the specification fails to provide proper antecedent basis for the claimed subject matter. Specifically, the ratio disclosed in the specification relates to the ratio of the longitudinal length of the chamber to the nominal height of the chamber.

Claim Objections

Claims 26-31, 33 and 47 are objected to because of the following informalities:

Claims 26, 27, 29, 30 and 33 recite the limitation "lower portion", however, the limitation was previously recited as "bottom portion". To avoid any misunderstanding, the Examiner respectfully suggests the use of only one of the expressions.

Claims 28 and 31 recite the limitation "top portion", however, the limitation was previously recited as "upper portion". To avoid any misunderstanding, the Examiner respectfully suggests the use of only one of the expressions.

Claim 47 recites the limitation "wherein the bottom of said chamber... over a distance between about 50 and about 60 percent of the length of the chamber", the claim appears to be incomplete since it is not clear what is being claimed. For purpose

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of examination, the recitation is been considered as follow: "wherein the bottom of said chamber in the longitudinal center extends over a distance between about 50 and about 60 percent of the length of said chamber".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5, 22, 26, 29, 30, 33 and 50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "the flattened bottom" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 22 recites the limitation "the sides" in line 1, the limitation renders the claim indefinite since it is not clear as to the sides of what is being claimed.

Claim 22 recites the limitation "the center" in line 2, the limitation renders the claim indefinite since it is not clear as to the center of what is being claimed.

Claim 22 recites the limitation "both ends" in line 2, the limitation renders the claim indefinite since it is not clear as to both ends of what is being claimed.

Claims 26 and 29 recite the limitation "the junction" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 30 recites the limitation "the junction" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 33 recites the limitation "the elevation of said lower portion", the recitation renders the claim indefinite since the lowest portion is considered to have a zero elevation.

Claim 50 recites "the method of claim 41", the recitation renders the claim indefinite since claim 41 refers to an arc tube blank and does not refers to a method.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 17, 18, 20, 21, 22, 30, 32, 33 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Cox (US 4,988,917).

Regarding claim 17, Cox discloses an arc tube (see Fig. 1) having a pair of spaced apart electrodes (16), an upper portion (top section of arc tube 12) longitudinally conforming generally between the electrodes to the shape of the arc (50) to be drawn therebetween in the operation of the arc tube (12), and a flattened bottom (bottom section of arc tube 12).

Regarding claim 18, Cox discloses an arc tube (see Fig. 1) wherein the electrodes (34) are tilted downwardly toward each other (end tip 36 of electrode 16).

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Regarding claim 20, Cox discloses an arc tube (see Fig. 1) having a pair of spaced apart electrodes (16), the electrodes (16) being tilted downwardly toward each other (end tip 36 of electrode 16).

Regarding claim 21, Cox discloses an arc tube including a flattened bottom (bottom section of arc tube 12).

Regarding claim 22, Cox discloses an arc tube wherein the sides thereof progressively narrow from the center thereof toward both ends thereof (see Fig. 1).

Regarding claim 30, Cox discloses an arc tube having a pair of spaced apart electrodes (16), a circular cross-section upper portion and a flattened bottom, the junction of the upper portion and the lower portion (bottom section of arc tube 12) being below the elevation of the electrodes (16).

Regarding claim 32, Cox discloses an arc tube having a pair of spaced apart electrodes (16), an upper portion (top section of arc tube 12) longitudinally conforming generally between the electrodes to the shape of the arc (50) to be drawn therebetween in the operation of the arc tube (12), and a flattened bottom (bottom section of arc tube 12). The recitation "to hereby reduce the temperature differential in the arc tube walls" has not been given patentable weight because it is considered an intended use recitation. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ 2d 1647 (1987).

Regarding claim 33, Cox discloses an arc tube (Fig. 1) wherein the bottom portion is the lowest elevation of the arc tube.

Regarding claim 35, Cox discloses an arc tube wherein the sides thereof progressively narrow from the center thereof toward both ends thereof (see Fig.1).

Claims 3-5, 12-14, 16, 41, 44-47, 49 and 50 are rejected under 35 U.S.C. 102(b) as being anticipated by Kowalezyk et al. (US 5,525,863).

Regarding claim 3, Kowalezyk discloses a discharge lamp (see Figs.3 and 4a) having a base (1), a light transparent outer envelope (2) and an arc tube operatively mounted therein, the base (1) and the arc tube (3) being rotationally fixed relative to each other and the base having means (6 and 7) for predetermining the rotational orientation thereof when operatively mounted in a fixture, the arc tube (10) having a pair of spaced apart electrodes (15), an upper portion (10b) longitudinally conforming generally between the electrodes to the shape of the arc to be drawn therebetween and a canoe-shaped lower portion (10a, lower portion is canoe-shape in the longitudinal direction).

Regarding claim 4, Kowalezyk discloses a lamp wherein the lower portion has a substantially planar bottom (see Fig.4a).

Regarding claim 5, Kowalezyk discloses a lamp wherein the flattened bottom of the arc tube is upwardly concave end to end and side to side (see Figs. 4a and 4c).

Regarding claim 12, Kowalezyk discloses an arc tube (see Fig. 4a) having a pair of spaced apart electrodes (15) and a canoe-shaped bottom portion (10a, lower portion is canoe-shape in the longitudinal direction).

Regarding claim 13, Kowalezyk discloses an arc tube (see Fig. 4a) including an upper portion longitudinally conforming generally between the electrodes (15) to the shape of the arc to be drawn therebetween.

Regarding claim 14, Kowalezyk discloses an arc tube wherein the bottom portion is upwardly concave both longitudinally and transversely (see Figs. 4a and 4c).

Regarding claim 16, Kowalezyk discloses an arc tube wherein the electrodes (15) are closer to all parts of the bottom portion than to any part of the upper portion (see Figs. 4a and 4c).

Regarding claim 41, Kowalezyk discloses an arc tube comprising an enlarged light emitting chamber (10) intermediate tubular ends (16b) of the same diameter.

Regarding claim 44, Kowalezyk discloses an arc tube (see Fig. 4a) wherein the ratio of the maximum vertical height of the chamber to the maximum horizontal width of the chamber is approximately one (the value of the arc tube diameter and the maximum vertical height are almost the same).

Regarding claim 45, Kowalezyk discloses an arc tube wherein the bottom of the chamber is flattened in an area between about 20 and about 80 percent of the maximum width of the chamber (see Fig. 2b).

Regarding claim 46, Kowalezyk discloses an arc tube wherein the bottom of the chamber in the longitudinal direction extends over a distance between about 50 and

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about 60 percent of the length of the chamber (see Fig. 4a, flattened bottom portion in the longitudinal, i.e. length, direction).

Regarding claim 47, Kowalezyk discloses an arc tube wherein the bottom of the chamber is flattened in an area between about 20 and about 80 percent of the maximum length of the chamber (see Fig. 4a, flattened bottom portion in the longitudinal, i.e. length, direction).

Regarding claim 49, Kowalezyk discloses an arc tube (see Fig. 4a) wherein the chamber (10) is widest at the longitudinal center (larger diameter at the center of the arc tube) thereof and progressively more narrow towards the ends of the chamber (smaller diameter at the end 16b of the arc tube).

Regarding claim 50, Kowalezyk discloses an arc tube wherein the height of the chamber (10) is the greatest at the longitudinal center of the chamber and is progressively more narrow towards the ends of the chamber (see Fig. 4a).

Claims 17, 19, 23-34, 36 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Howles et al. (US 4,001,623).

Regarding claim 17, Howles discloses an arc tube (see Fig. 5) having a pair of spaced apart electrodes (14), an upper portion (19) longitudinally conforming generally between the electrodes to the shape of the arc to be drawn therebetween in the operation of the arc tube (10), and a flattened bottom (bottom section of arc tube 10, flattened in the longitudinal direction).

Regarding claim 19, Howles discloses an arc tube (see Fig. 5) wherein the electrodes (14) are closer to all parts of the bottom portion than to any part of the upper portion (19).

Regarding claim 23, Howles discloses an arc tube (see Fig. 5) having a pair of spaced apart electrodes (14) and a flattened bottom (bottom section of arc tube 10, flattened in the longitudinal direction), the distance from the electrodes (14) to the bottom (bottom section of arc tube 10, flattened in the longitudinal direction) being less than the distance from the electrodes (14) to the upper portion (19).

Regarding claim 24, Howles discloses an arc tube (see Fig. 5) wherein the upper portion is circular in cross-section between the free ends of the electrodes (see Fig. 6), the radius of curvature of the upper portion increasing from the electrodes toward the center of the arc tube (see Fig 5).

Regarding claim 25, Howles discloses an arc tube (see Fig. 6) where the electrodes are lower than the axis of the circle of the upper portion at the center of the arc tube (cross-section on Fig. 6 shows an axis center 13, the electrodes are offset a distance x below center 13, Column 2, lines 10-23).

Regarding claim 26, Howles discloses an arc tube wherein the junction of the upper portion (19) and the lower portion is below the electrodes (14).

Regarding claim 27, Howles discloses an arc tube (see Fig. 5) having a pair of spaced apart electrodes (14), a circular cross-section upper portion (see Fig. 6) and a flattened bottom (bottom section of arc tube 10, flattened in the longitudinal direction),

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the distance from the electrodes to the lower portion being less than the distance from electrodes to the upper portion (19).

Regarding claim 28, Howles discloses an arc tube wherein the radius of curvature of the top portion increases from the electrodes to the center of the arc tube (see Fig. 5).

Regarding claim 29, Howles discloses an arc tube wherein the junction of the upper portion (19) and the lower portion is below the electrodes (14).

Regarding claim 30, Howles discloses an arc tube having a pair of spaced apart electrodes (14), a circular cross-section upper portion (see Fig. 6) and a flattened bottom (bottom of arc tube 10, flattened in the longitudinal direction), the junction of the upper portion and the lower portion (bottom section of arc tube 10) being below the elevation of the electrodes (14).

Regarding claim 31, Howles discloses an arc tube (see Fig. 5) wherein the radius of curvature of the top portion increases from the electrodes to the center of the arc tube.

Regarding claim 32, Howles discloses an arc tube (see Fig. 5) having a pair of spaced apart electrodes (14), an upper portion (19) longitudinally conforming generally between the electrodes to the shape of the arc to be drawn therebetween in the operation of the arc tube (10), and a flattened bottom (bottom section of arc tube 10, flattened in the longitudinal direction). The recitation "to hereby reduce the temperature differential in the arc tube walls" has not been given patentable weight because is considered an intended used recitation. It has been held that a recitation with respect to

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the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ 2d 1647 (1987).

Regarding claim 33, Howles discloses an arc tube (Fig. 5) wherein the bottom portion is the lowest elevation of the arc tube.

Regarding claim 34, Howles discloses an arc tube wherein the electrodes (14) are closer to the bottom portion than to the upper portion (19) at the longitudinal center of the arc tube (10).

Regarding claim 36, Howles discloses an arc tube (see Fig. 6) having a pair of spaced apart electrodes (14), a generally circular cross-section upper portion (19) and a generally circular bottom portion (bottom of arc tube 10, see Fig. 6), the radius of curvature of the bottom portion being substantially greater than the radius of the upper portion.

Regarding claim 37, Howles discloses an arc tube having a pair of spaced apart electrodes and a flattened bottom (bottom portion of arc tube 10, flattened in the longitudinal direction) concave upwardly both longitudinally and laterally (see Figs. 5 and 6).

Claims 41 and 48-50 are rejected under 35 U.S.C. 102(b) as being anticipated by Edison (US 865,367).

Regarding claim 41, Edison discloses an arc tube comprising an enlarged light emitting chamber (A) intermediate tubular ends (ends of lamp A) of the same diameter.

Regarding claim 48, Edison discloses an arc tube (see Fig. 1) wherein the top of the chamber (A) is arched.

Regarding claim 49, Edison discloses an arc tube (see Fig. 1) wherein the chamber (A) is widest at the longitudinal center (larger diameter at the center of the arc tube) thereof and progressively more narrow towards the ends of the chamber (smaller diameter at the end of the arc tube).

Regarding claim 50, Edison discloses an arc tube wherein the height of the chamber (A) is the greatest at the longitudinal center of the chamber and is progressively more narrow towards the ends of the chamber (see Fig. 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Howles et al. (US 4,001,623) in view of Kowalezyk et al. (US 5,525,863).

Regarding claim 1, Howles discloses an arc tube (see Fig. 5) having a pair of spaced apart coaxial electrodes (14), an upper portion (19) longitudinally conforming generally between the electrodes to the shape of the arc to be drawn in the operation of the lamp, and a flattened lower portion (Fig. 5, flattened bottom section of lamp 10 in the longitudinal axis), the distance at all cross-sectional locations between the electrodes

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(14) between the flattened lower portion and the axis of the electrodes being less than the distance between the upper portion and the axis of the electrodes (14).

Howles is silent in regards to the limitation of the arc tube further including a base, a light transparent outer envelope, the base and the arc tube being rotationally fixed relative to each other and the base having means for predetermining the rotational orientation thereof when operatively mounted in a fixture. However, in the same field of endeavor, Kowalezyk discloses an arc tube assembly (see Fig. 3) further comprising a base (1), a light transparent outer envelope (2), the base and the arc tube being rotationally fixed relative to each other and the base having means (6 and 7) for predetermining the rotational orientation thereof when operatively mounted in a fixture. An outer envelope assembly is commonly used discharge lamps in order to provide additional protection in case of rupture of the arc tube. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the outer envelope assembly as disclosed by Kowalezyk in the arc tube of Howles in order to provide additional protection in case of rupture of the arc tube.

Regarding claim 2, Howles discloses an arc tube (see Fig. 5) having a pair of spaced apart coaxial electrodes (14), an upper portion (19) longitudinally conforming generally between the electrodes to the shape of the arc to be drawn in the operation of the lamp, and a flattened lower portion (Fig. 5, flattened bottom section of lamp 10 in the longitudinal axis), no part of which is further than the radius of the upper portion defining circle. Claim 2 is rejected for the same reasons stated in the rejection of claim 1 above.

Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kowalezyk et al. (US 5,525,863) in view of Cox (US 4,988,917).

Regarding claim 6, Kowalezyk discloses the claimed invention except for the limitation of the electrodes being tilted downwardly toward each other. However, in the same field of endeavor Cox discloses an arc tube comprising a pair of electrodes tilted downwardly toward each other in order to prevent the arc to wander across the arc tube structure and away from the optically ideal location and to a potentially destructive position adjacent to arc tube wall (see Abstract). Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the electrodes being tilted downwardly toward each other in order to prevent the arc to wander across the arc tube structure and away from the optically ideal location and to a potentially destructive position adjacent to arc tube wall.

Regarding claim 15, claim 15 is rejected for the same reasons stated in the rejection of claim 6 above.

Claims 7, 38, 39, 40, 42 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kowalezyk et al. (US 5,525,863).

Regarding claim 7, Kowalezyk discloses the claimed invention except for the limitation of the width of the arc tube at the height of the electrodes at the free ends of the electrodes being $\frac{2}{3}$ of the width of the arc tube at the height of the electrodes at the center of the arc tube. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 205 USPQ 215

(CCPA 1980). Thus, it would have been obvious to one of ordinary skills in the art at the time the invention was made to the width of the arc tube at the height of the electrodes at the free ends of the electrodes being $2/3$ of the width of the arc tube at the height of the electrodes at the center of the arc tube, since discovering an optimum value of a result variable is considered within the skills of the art.

Regarding claim 38, Kowalezyk discloses an arc tube having a pair of spaced apart electrodes (14), the width of the arc tube at the height of the electrodes (14) at the free ends of the electrodes being smaller than the width of the arc tube at the height of the electrodes at the center of the arc tube. Claim 38 is rejected for the same reasons stated in the rejection of claim 7 above.

Regarding claim 39, Kowalezyk discloses an arc tube (see Fig.4a) wherein the ratio of the width to the height of the arc tube at the longitudinal center is approximately one (the values of the arc tube diameter and the maximum vertical height are almost the same).

Regarding claim 40, Kowalezyk discloses an arc tube (see Fig. 4a) wherein the upper portion of the arc tube longitudinally conforms generally between the electrodes to the shape of the arc to be drawn therebetween in the operation of the arc tube.

Regarding claim 42, Kowalezyk discloses the claimed invention except for the limitation of the ratio of the diameter of the tube to the maximum vertical height of the chamber being between about $7/10$ and about $7/30$. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. It would

have been obvious to one having ordinary skill in the art at the time the invention was made to provide the ratio of the diameter of the tube to the maximum vertical height of the chamber being between about 7/10 and about 7/30, since optimization of workable ranges is considered within the skill of the art.

The recitation "to thereby reduce the amount of heat required for a pinch seal" has not been given patentable weight because is considered an intended used recitation. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ 2d 1647 (1987).

Regarding claim 43, Kowalezyk discloses the claimed invention except for the limitation of the ratio of the diameter of the tube to the maximum horizontal width of the chamber being between about 7/10 and about 7/30. Claim 43 is rejected for the same reasons stated in the rejection of claim 42 above.

Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cox (US 4,988,917) in view of Kowalezyk et al. (US 5,525,863).

Regarding claim 8, Cox discloses an arc tube (see Fig. 1) having a pair of spaced apart electrodes (34) tilted downwardly toward the center of the arc tube (end tip 36 of electrode 16).

Cox is silent in regards to the limitation of the arc tube further including a base, a light transparent outer envelope, the base and the arc tube being rotationally fixed

relative to each other and the base having means for predetermining the rotational orientation thereof when operatively mounted in a fixture. However, in the same field of endeavor, Kowalezyk discloses an arc tube assembly (see Fig. 3) further comprising a base (1), a light transparent outer envelope (2), the base and the arc tube being rotationally fixed relative to each other and the base having means (6 and 7) for predetermining the rotational orientation thereof when operatively mounted in a fixture. An outer envelope assembly is commonly used discharge lamps in order to provide additional protection in case of rupture of the arc tube. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the outer envelope assembly as disclosed by Kowalezyk in the arc tube of Cox in order to provide additional protection in case of rupture of the arc tube.

Regarding claim 9, the combination Cox-Kowalezyk discloses the claimed invention except for the limitation of the width of the arc tube at the height of the electrodes at the free ends of the electrodes being $2/3$ of the width of the arc tube at the height of the electrodes at the center of the arc tube. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980). Thus, it would have been obvious to one of ordinary skills in the art at the time the invention was made to the width of the arc tube at the height of the electrodes at the free ends of the electrodes being $2/3$ of the width of the arc tube at the height of the electrodes at the center of the arc tube, since discovering an optimum value of a result variable is considered within the skills of the art.

Regarding claim 10, the combination Cox-Kowalezyk discloses the claimed invention except for the limitation of the width of the arc tube being greater than the height of the arc tube at the longitudinal center. It has been held that a change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955). It would have been obvious to one having ordinary skill in the art to the width of the arc tube being greater than the height of the arc tube at the longitudinal center, since such a modification would have involve a mere change in the size of a component.

Regarding claim 11, Cox discloses an arc tube wherein the top of the arc tube is arched between the electrodes to approximate the position of the arc drawn in the operation of the lamp.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariceli Santiago whose telephone number is (703) 305-1083. The examiner can normally be reached on Monday-Friday from 7:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (703) 305-4794. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7382. Additionally, the following fax phone numbers can be used during the prosecution of this

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application (703) 872-9318 (for response before a Final Action) and (703) 872-9319 (for response after a Final Action).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

(ns) 6/10/02
Mariceli Santiago
Patent Examiner
Art Unit 2879

Ashok Patel
ASHOK PATEL
PRIMARY EXAMINER